Abstract

This invention relates to a stainless steel gasket having markedly improved strength and fatigue properties due to precipitation strengthening. Its composition comprises C: at most 0.03%, Si: at most 1.0%, Mn: at most 2%, Cr: 16.0% - 18.0%, Ni: 6.0% - 8.0%, N: at most 0.25%, if necessary Nb: at most 0.30%, and a remainder of Fe and unavoidable impurities. After cold rolling, final annealing is carried out, and after a structure is formed of recrystallized grains with an average grain diameter of at most 5 μm having an area ratio of 50 - 100% and an unrecrystallized portion having an area ratio of 0 - 50%, a metal gasket is formed by steps including temper rolling with a reduction of at least 30% to make the area ratio of a strain induced martensite phase at least 40%, and forming and heat treatment at 200 - 350°C. The metal gasket has a duplex phase structure of at least 40% martensite in which chromium nitride is precipitated and a remainder of austenite, or it has a single phase structure of martensite in which chromium nitride is precipitated, and it has Hv of at least 500.